

**2nd Annual Symposium
Toward a Global Earth Observation System of Systems
Future National Operational Environmental Satellites**

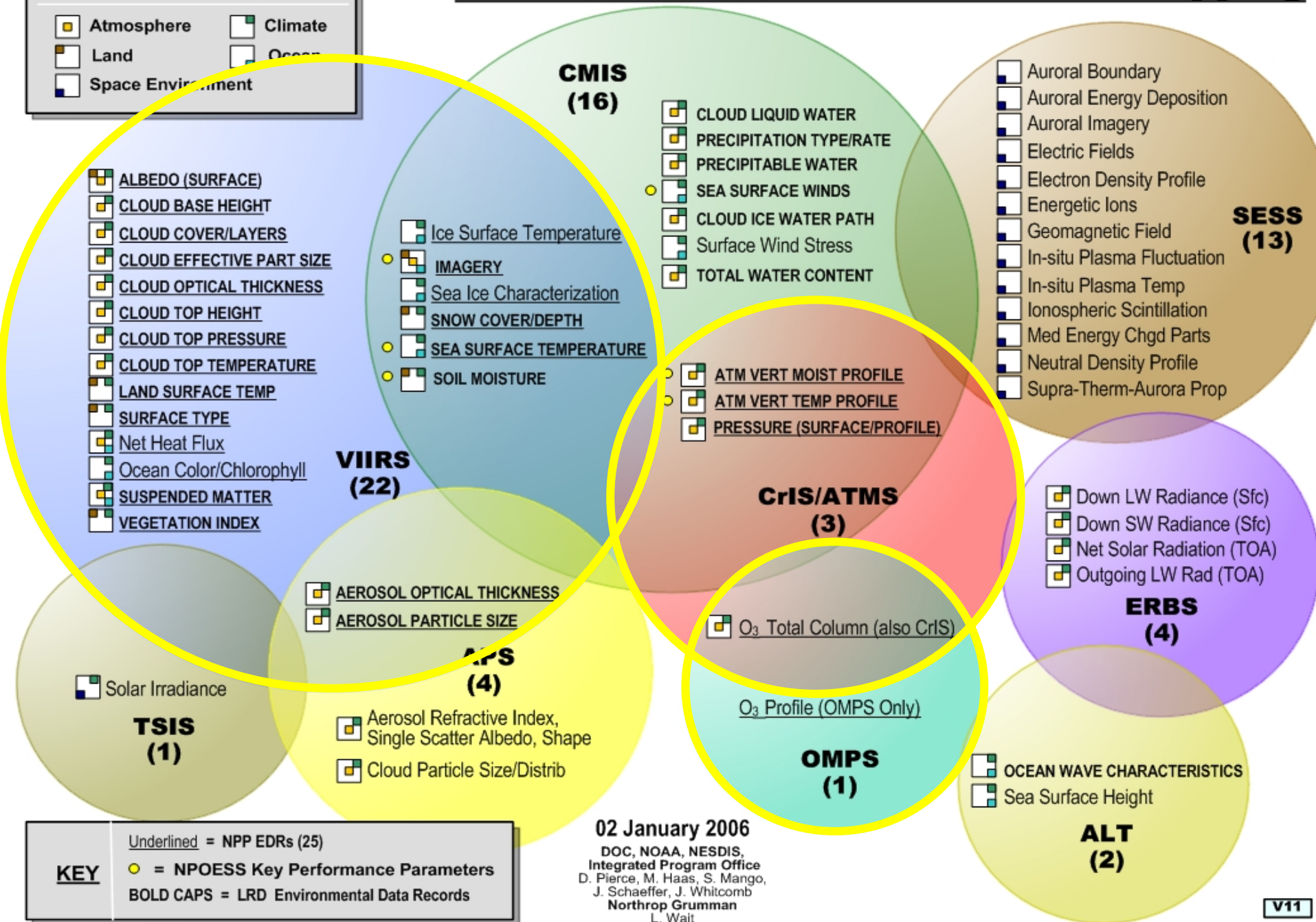
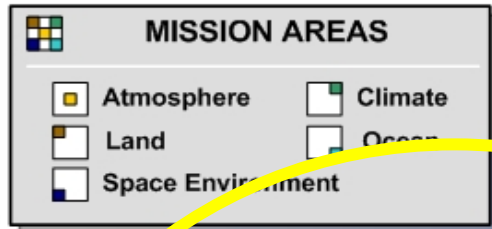
Calibration/Validation of the NPOESS NPP Instruments: Plan Overview

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NPOESS Integrated Program Office**

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NPOESS' 55 EDRs-to-Sensor Suites Mapping

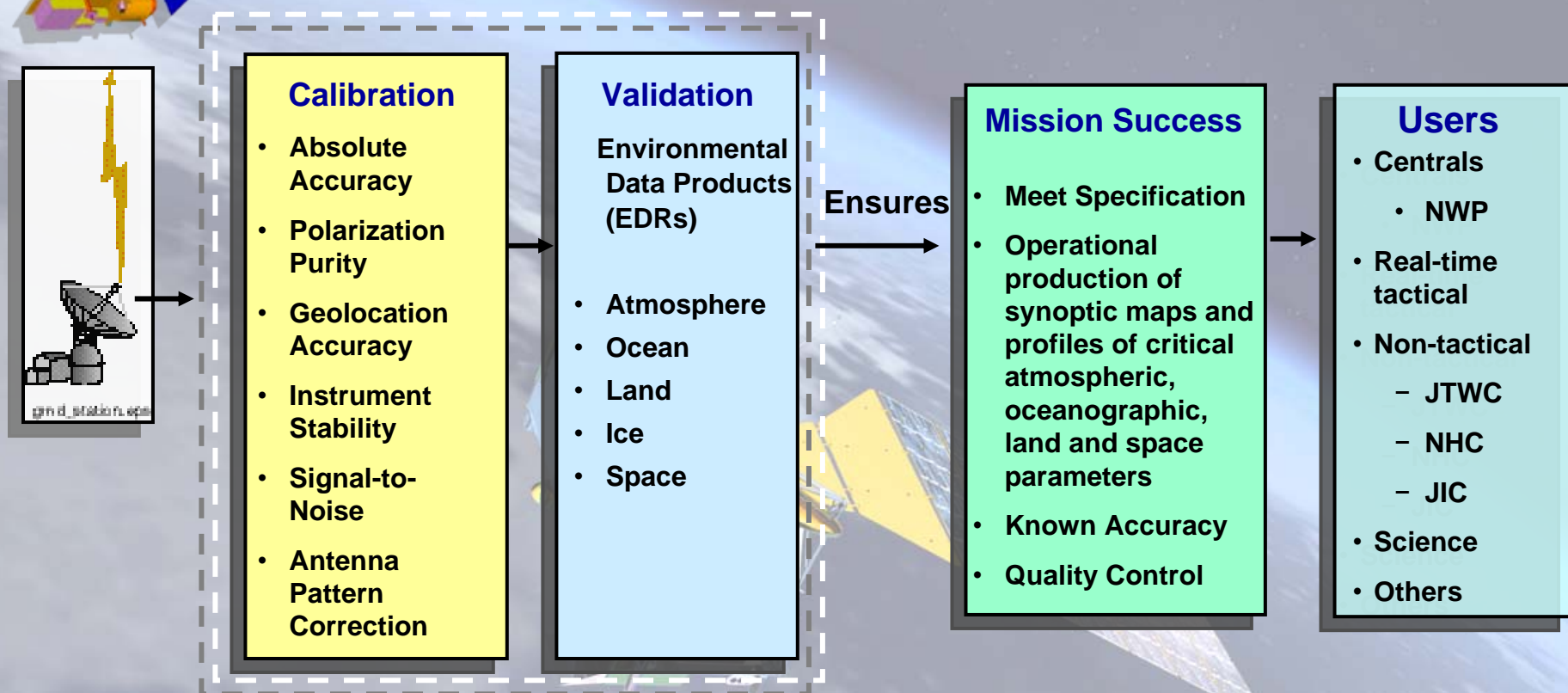




Philosophy of Calibration/Validation



Cal/Val



Calibration ensures that the Sensor Data (SDRs) are usable
Validation ensures that the Environmental Data (EDRs) are usable

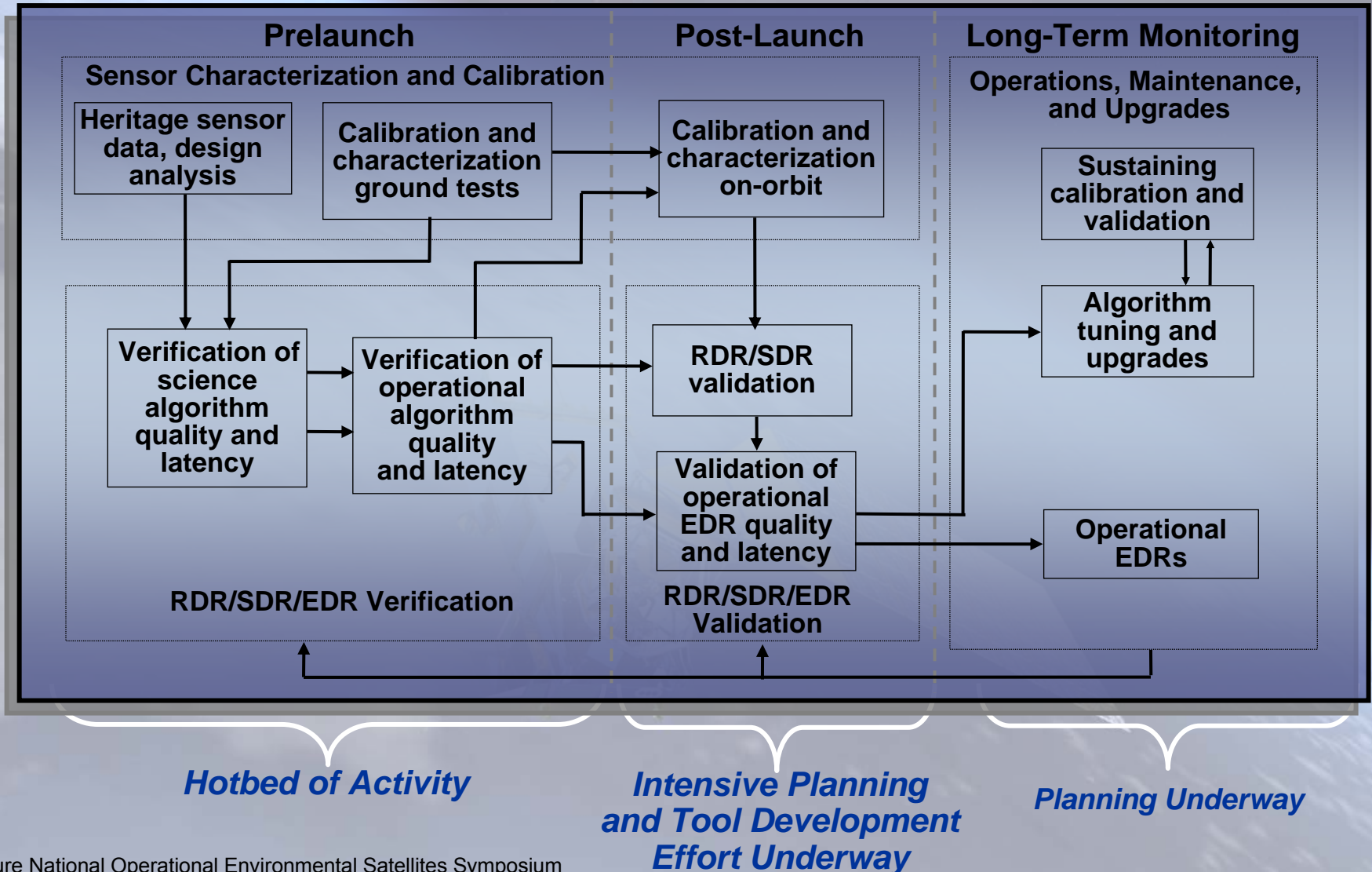


The Stakeholders





NPOESS Calibration Verification Validation Program- System Perspective





NPP Cal/Val Complexity

- **26 EDRs**
- **4 New Instruments**
- **3 Resource Management Centers**
- **Pre-launch tests occurring at 4 different sensor vendors**
- **How are we managing this?**
- **How do we know our plans are comprehensive?**

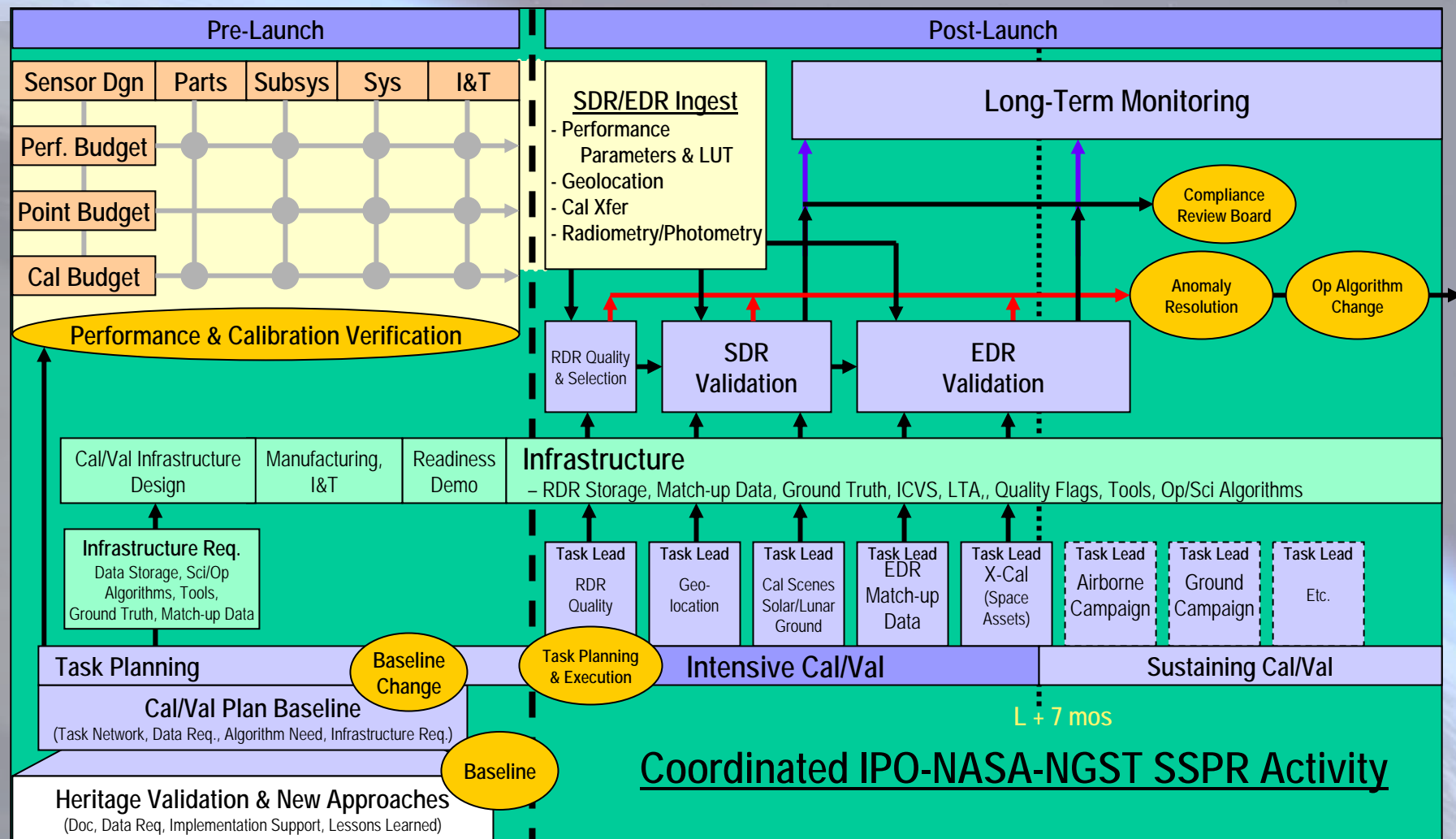


Coordinated NPP Cal/Val Plan Baseline and Changes

- **Coordinated NPP Cal/Val Plan Baseline**
 - The SSPR Prime contractor, the Integrated Program Office, and the NAS NPP Science team have a (mostly) common interest in executing a successful Cal/Val
 - SDR/EDR Compliance-to-Cal/Val Requirement system engineering (with Science and Technical Advisors involvement) will identify tasks that are must, specific, realistic, and measurable. A Tasks Network will be used to explore schedule constraints and clearly define task responsibilities
 - The CVMT and Science/Technical Advisors are responsible for constraint management
 - Looking for synergistic tasks. Exploring parallel task execution options
 - Identifying discrepancies in bottom-up schedule, budget and Goals
 - Using priorities to explore trade-offs
 - Using NPOESS SCB and NETS to resolve schedule and budget gaps
 - From the Task Network the CVMT will establish roles and responsibilities among performing organizations
 - The CVMT will manage execution of the Joint NPP Cal/Val Plan baseline
- **Joint NPP Cal/Val Plan Baseline changes**
 - The CVCCB will manage baseline changes employing traditional CCB processes and documentation



NPOESS NPP Cal/Val "Big Picture"





"Bottom Up" approach to defining Cal/Val

Driven by diagnostic work that has to be done in the intensive post-launch phase

CasaNOSA: Browse Tasks For: Invalid User ID By Status: Open
https://casanosa.noaa.gov/pm/task.php?func=browse&group_project_id=147&set=custom&assi... Google

Logged In: kstgermain Logout
Register New Project
Account Maintenance
My Personal Page
Bookmark this Page

Project: NPOESS Cal/Val
Technical Library
Project Summary
Project Admin

Projects
Project Map
New Releases
Inter-project Utilities

CasaNOSA
Help & Docs
Discussion Forums
Phone List
Dictionary
Forgot M
Contact Us

Search
Project
Require All Words
Search

Powered by
SOURCE FORGE

Project List | Add Task | My Tasks | Browse Open Tasks | Admin
Browse Tasks by User and/or Status:
Subproject Assignee Status Keyword Sort
NPP Post Launch Any Open Off Browse

Browsing Custom Task List In NPP Post Launch

Task ID	Summary	Start Date	End Date	Percent Complete
769	VIIRS M/T SDR LUT Calculate and Upload	2004-08-16	* 2004-08-16	0%
770	VIIRS M/T SDR Algorithm Modification	2004-08-16	* 2004-08-16	0%
771	VIIRS M/T SDR Moon in Space View Correction	2004-08-16	* 2004-08-16	0%
772	VIIRS M/T SDR Comparison with MODIS	2004-08-16	* 2004-08-16	0%
773	VIIRS M/T SDR Climatology Comparison	2004-08-16	* 2004-08-16	0%
774	VIIRS M/T SDR Band-to-Band Radiometric Comparison	2004-08-16	* 2004-08-16	0%
775	VIIRS M/T Yaw Maneuver	2004-08-16	* 2004-08-16	0%
776	VIIRS M/T Roll Maneuver	2004-08-16	* 2004-08-16	0%
777	NPP Thermal Analysis	2004-08-16	* 2004-08-16	0%
778	VIIRS M/T Pitch Maneuver	2004-08-16	* 2004-08-16	0%
779	VIIRS M/T Yaw Maneuver Analysis - Screen Transmission	2004-08-16	* 2004-08-16	0%
780	VIIRS M/T Roll Maneuver Analysis	2004-08-16	* 2004-08-16	0%
781	VIIRS M/T SDR Pitch Maneuver Analysis	2004-08-16	* 2004-08-16	0%
782	VIIRS M/T SDR Accuracy Evaluation	2004-08-16	* 2004-08-16	0%
783	VIIRS SST Comparison with Reynolds Fields	2004-08-16	* 2004-08-16	0%
784	VIIRS SST Truth Data Quality Control	2004-08-16	* 2004-08-16	0%
785	VIIRS SST Generate Matchup Database with Truth Data	2004-08-16	* 2004-08-16	0%
786	VIIRS SST Stratify Residual Differences	2004-08-16	* 2004-08-16	0%
787	VIIRS SST Algorithm Tuning	2004-08-16	* 2004-08-16	0%
788	VIIRS M/T SDR Stabilized Algorithm and LUTs	2004-08-16	* 2004-08-16	0%
789	OMPS Digital Numbers in Range Check	2004-08-17	2004-08-30	0%
790	OMPS Physical Temperatures in Range	2004-08-19	* 2004-08-19	0%
791	OMPS Bad Pixel Check	2004-08-19	* 2004-08-19	0%
792	OMPS Light Leak Check	2004-08-19	* 2004-08-19	0%
793	OMPS SDR Functional Data Flow Check	2004-08-19	* 2004-08-19	0%
794	OMPS EM/EMC Check	2004-08-19	* 2004-08-19	0%
795	OMPS Charge Transfer Efficiency (CTE) Check	2004-08-19	* 2004-08-19	0%
796	OMPS Dark Current Check	2004-08-19	* 2004-08-19	0%
797	OMPS Bad Pixel Baseline	2004-08-19	* 2004-08-19	0%
798	OMPS Dark Current Baseline	2004-08-19	* 2004-08-19	0%

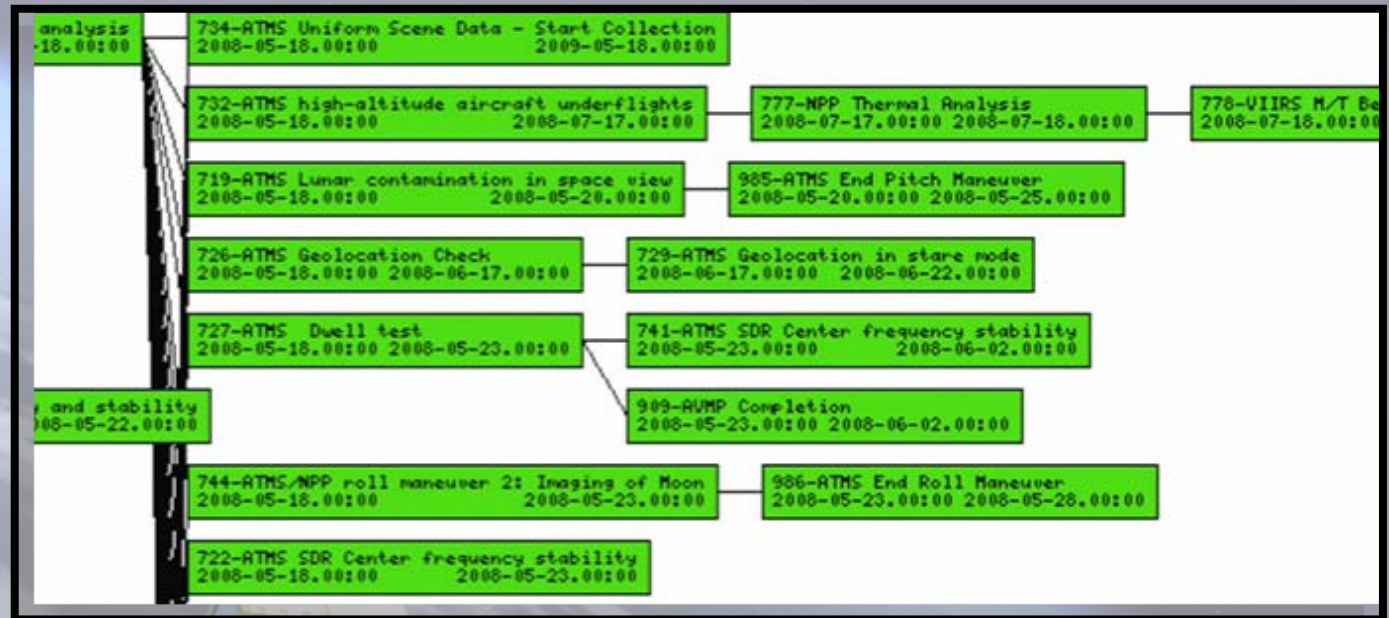


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- CasaNOSA: Task 908: CrIS Self Emission and Background Radiance - Sensor Checkout - Mozilla
- File Edit View Go Bookmarks Tools Window Help
- Back Forward Reload Stop https://casanosa.noaa.gov/pm/task_details.php?project_task_id=908 Search Print
- CasaNOSA**
- Logged in (logout)
- Project: NPOESS Cal/Val Technical Library
- Project Tools
- CrIS Self Emission and Background Radiance - Sensor Checkout
- Task Details
- | Name | Priority | Status |
|--------------------------------------------------------------|------------|--------|
| CrIS Self Emission and Background Radiance - Sensor Checkout | 1 - Medium | Open |
- Submit changes
- Schedule Details for CrIS Self Emission and Background Radiance - Sensor Checkout**
- Start Date: June 10, 2008 End Date: July 1, 2008
- Submit changes
- Description Details for CrIS Self Emission and Background Radiance - Sensor Checkout**
- Task Description:
- Get 10M in deep space position with CrIS configured in diagnostic mode for one or more orbits. Monitor CrIS temperature and IR response. Obtain data to characterize orbital variation of CrIS self emission and background radiance/temperature for duration of orbit.
- Add A Comment:

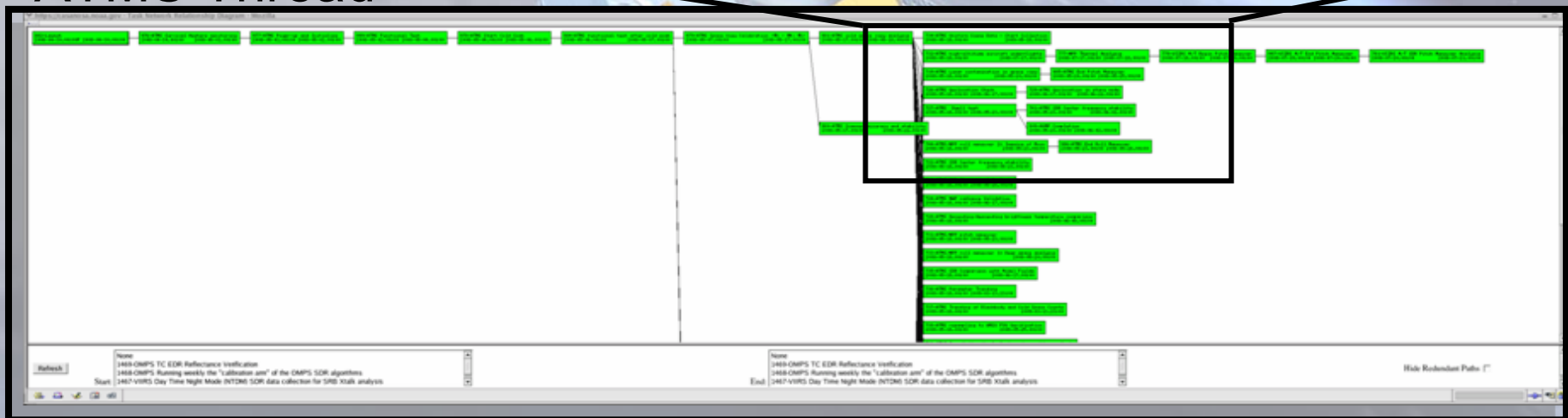


Once described, tasks are linked logically and scheduled

Technical threads are rigorously developed and reviewed by joint teams with individuals from NGST, sensor vendors, Academia, Gov't Labs, and FFRDCs.



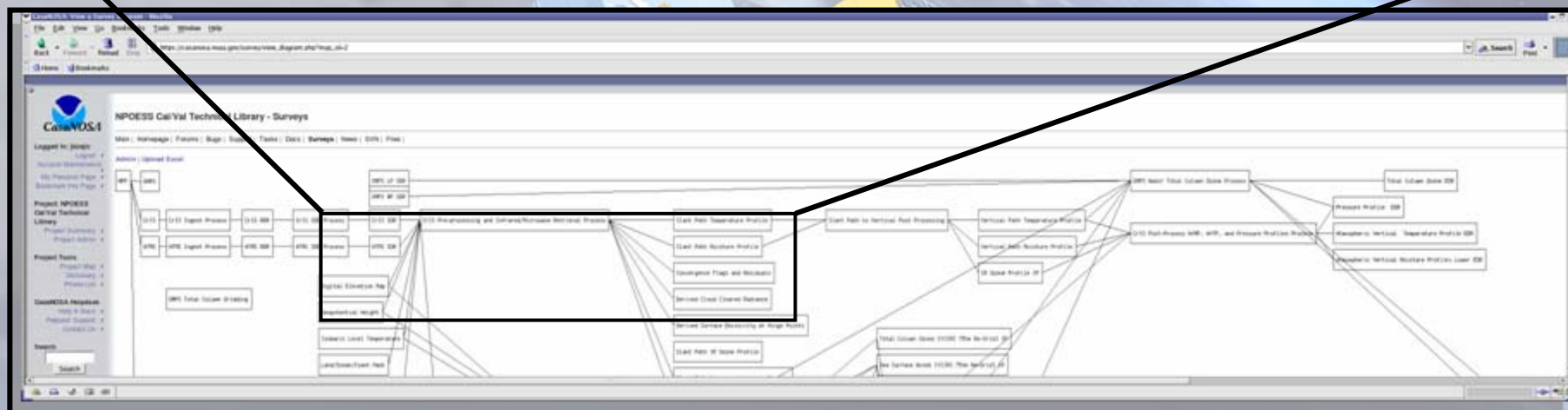
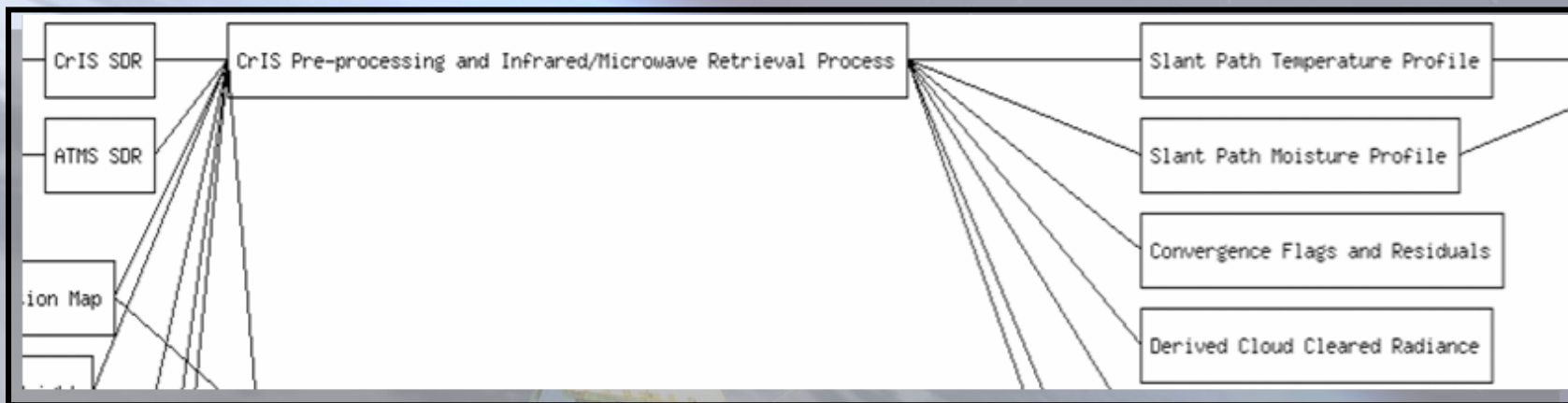
ATMS Thread





A technical library supports the distributed Cal/Val Team

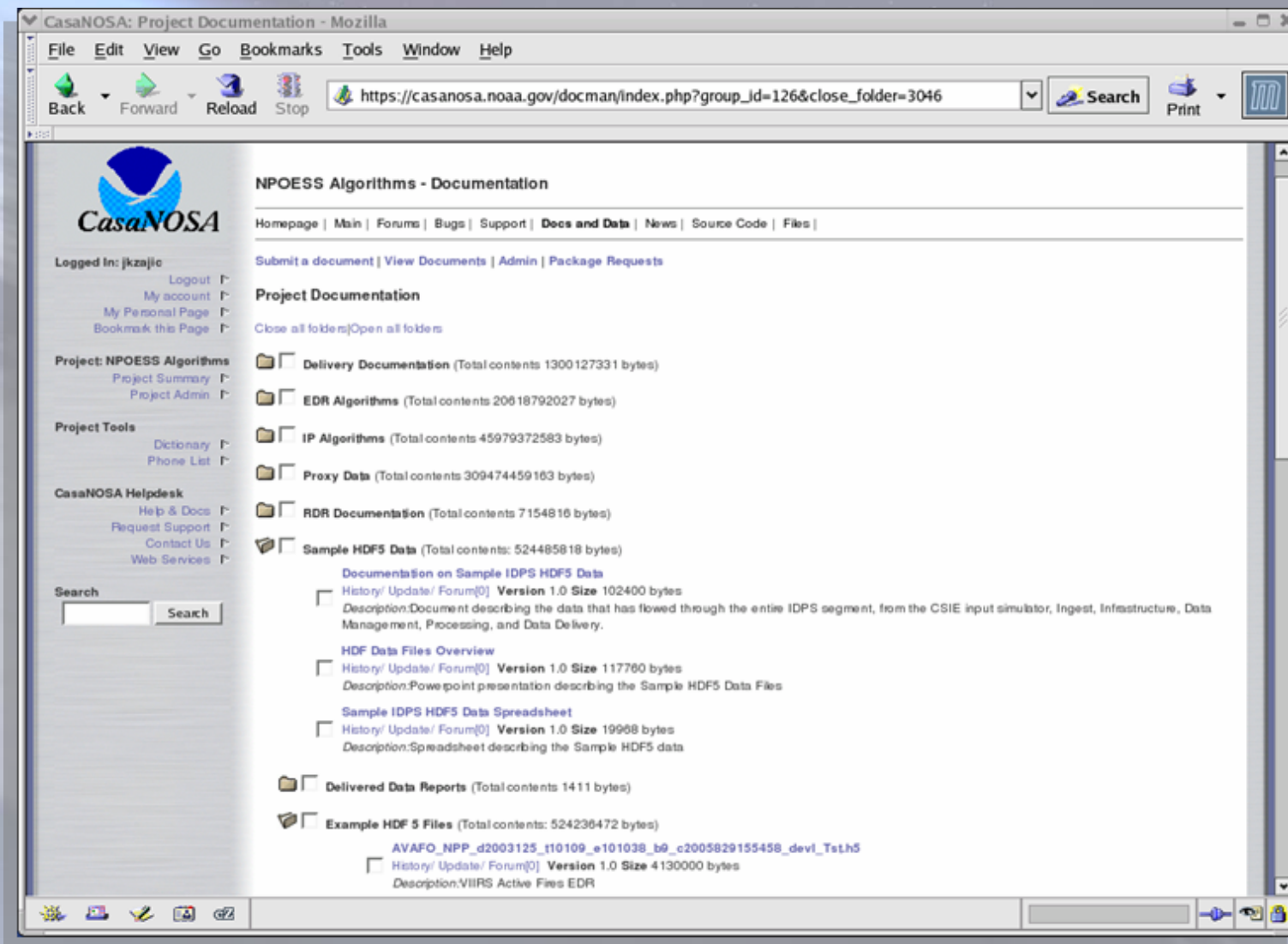
- *Sensor data, analyses, algorithms, formats, tools, reports*





The technical library includes the algorithms and their supporting documentation:

- **ATBDs, code, test data, formats, results, etc.**





All code, including algorithms and tools is under configuration control for Cal/Val

CasaNOSA: Subversion repository browsing - Mozilla

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop <https://casanosa.noaa.gov/svn/listing.php?rep=126&path=/VIIRS/IP/Mask/opsCode/trunk/> Search Print

CasaNOSA

Logged In: jkzajic
Logout
My account
My Personal Page
Bookmark this Page

Project: NPOESS Algorithms
Project Summary
Project Admin

Project Tools
Dictionary
Phone List

CasaNOSA Helpdesk
Help & Docs
Request Support
Contact Us
Web Services

Search
 Search

NPOESS Algorithms - Summary

[Homepage](#) | [Main](#) | [Forums](#) | [Bugs](#) | [Support](#) | [Docs and Data](#) | [News](#) | [Source Code](#) | [Files](#)

npalgs

Path: /VIIRS/IP/Mask/opsCode/trunk/src/
Rev: 163
Last modification: - 2005-07-14 11:31:17 -0400 (Thu, 14 Jul 2005)
Log message:
added branches, tags, and trunk directories to the Mask opsCode/ and sciCode/ directories. Also moved the subdirectories from opsCode/<subdir> and sciCode/<subdir> to opsCode/trunk/ and sciCode/trunk, respectively.

[Show changed files](#)

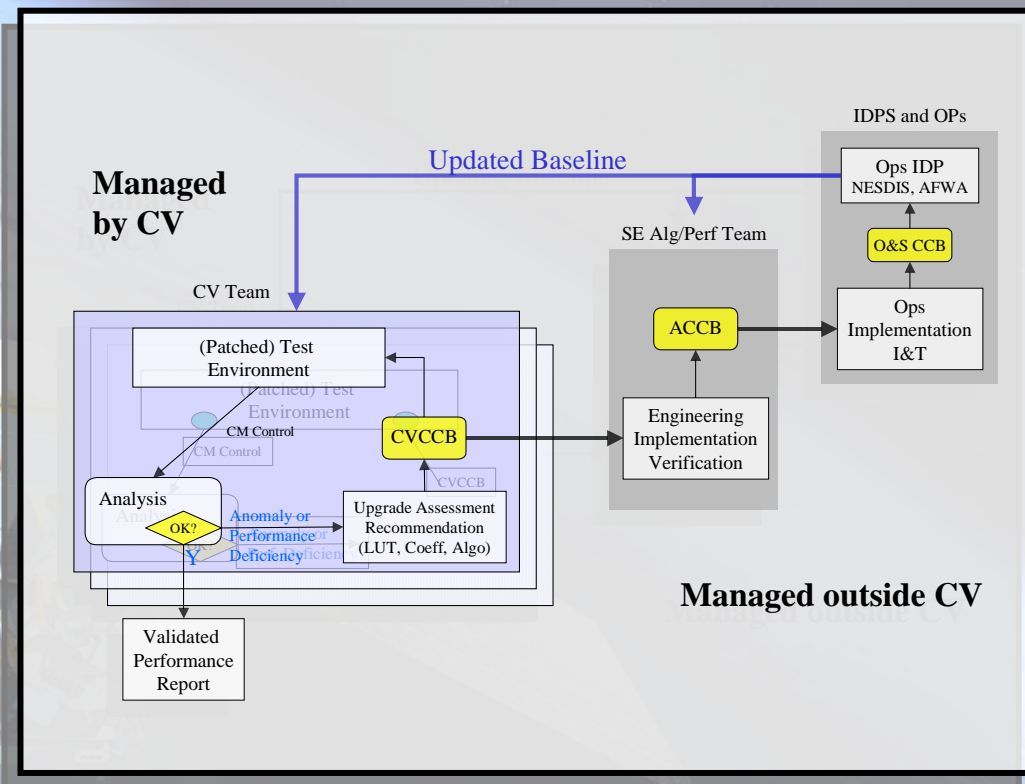
Current Directory: [] [VIIRS/] [IP/] [Mask/] [opsCode/] [trunk/] [src/] - [View Log](#)

Path	Log
Aero_Shadow_Fire.cpp	View Log
calc_VCM.cpp	View Log
Cloud_Adjacency.cpp	View Log
Cloud_Confidence.cpp	View Log
Cloud_Phase.cpp	View Log
coast_day.cpp	View Log
confidence_test.cpp	View Log
confidence_test_2val.cpp	View Log
day_night.cpp	View Log
desert_day.cpp	View Log
iband_Eval.cpp	View Log
Imakefile	View Log
init_vcm_flags.cpp	View Log
land_day.cpp	View Log
land_night.cpp	View Log
land_water.cpp	View Log
Process_Path.cpp	View Log



Cal/Val Anomaly Resolution & Ops Change

- The IPO/NASA/NGST SSPR Cal/Val Team will perform analysis and validation of calibration and SDR/EDR performances
- Cal/Val anomalies will be investigated by expert SSPR CV Anomaly Resolution Teams
- Anomaly findings and resolutions will be submitted to the CVCCB for consideration and subsequent recommendation to the ACCB and the O&S CCB for operational implementation



Infrastructure

Data Quality Subsystem

Cal/Val Database

Quality Flags/
Intermediate Products

Analysis Tools

Algorithms and Validation

Validation Data Sources

Validation Data Tools

Internal Gov't Studies

NPP Science Team

OATs Interface

MOUs/MOAs

Cal/Val Activities Today

Pre-launch Testing

Sensor Algorithms (SDRs)

Cal Coefficients/Look-up Tables

NPP Cal/Val Plan

Sensor Calibration

Long Term Monitoring:
Requirements and Tools

S/C Attitude Maneuvers

Transition to O&S

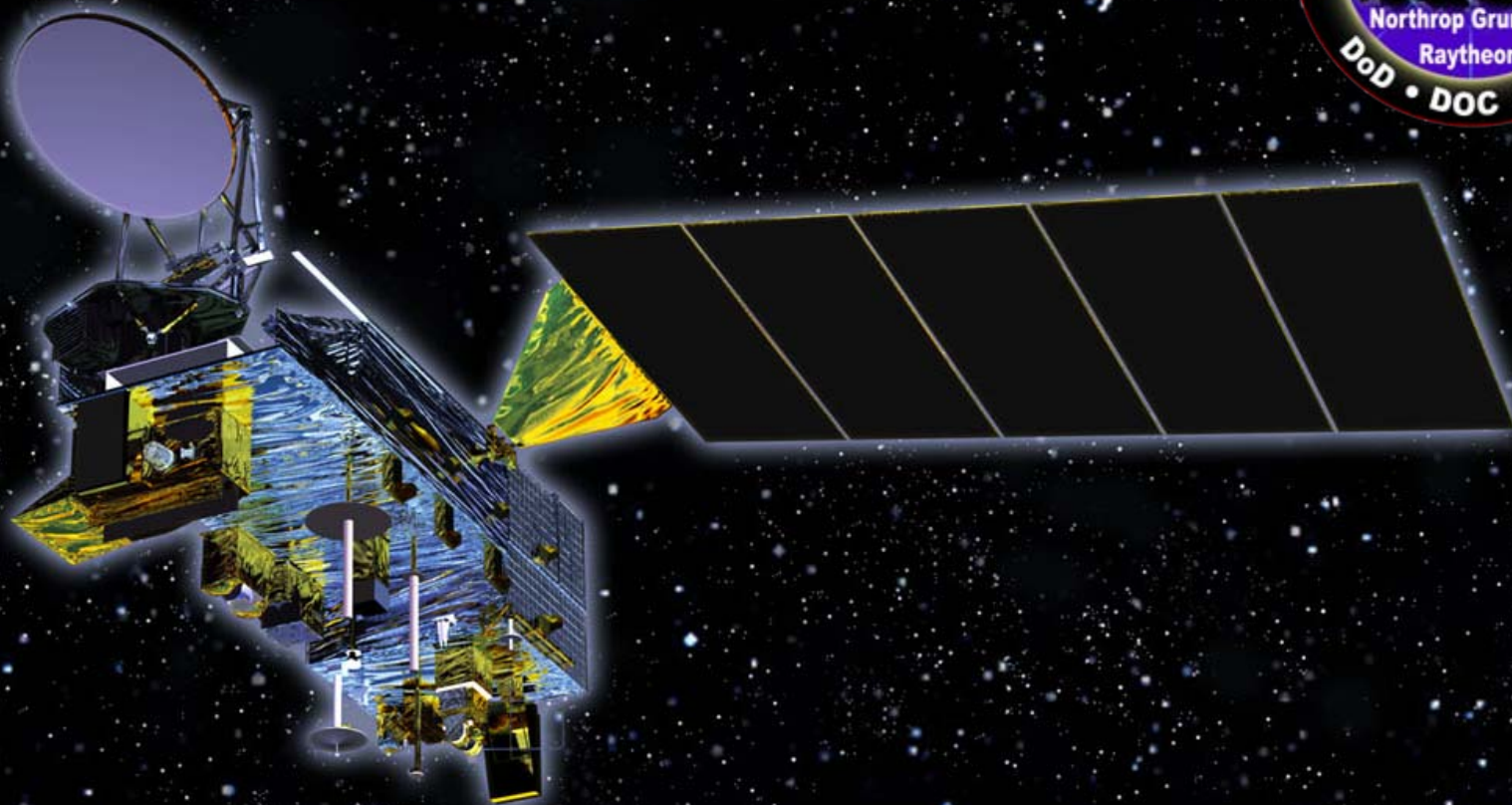
OPSCON Scenarios

Operational Issues



NPOESS Calibration Verification Validation Program Participants

	Exploration & Exploitation Activities	Performance Advisory Activities	Development Activities
IPO & NASA	NPOESS Internal Government Studies NASA NPP Science Team	NPOESS Operational Algorithm Team (NOAT) <ul style="list-style-type: none"> •Science •Algorithms •Sensors 	Integrated Product Teams (IPTs) <ul style="list-style-type: none"> •Systems Engineering (SE, SI, ST&E) •Payloads •IDPS •Operations and Support IPO Cal/Val Team
NGST		NGST Science Advisory Team (SAT) <ul style="list-style-type: none"> •Science 	Integrated Product Teams (IPTs) <ul style="list-style-type: none"> •Systems Engineering (SE, SI, ST&E, Cal/Val) •Payloads •IDPS •Operations & Support NGST Cal/Val Team
	NGST SE IPT Science Team		
Joint	NOESS P³I	NPOESS Customer Forum	
	Calibration/Validation Working Group (CVWG) Calibration/Validation Teams (Participation from Gov't Labs, Universities, FFRDCs, Centrals)		



National Polar-orbiting Operational Environmental Satellite System